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INSTRUCTION MANUAL

VOLTAGE REGULATED POWER SUPPLY

MODEL 605

SERIAL NO. A35073

kepco Inc. 131-38 SANFORD AVENUE • FLUSHING 52, N. Y. • Area Code 212 IN 1-7000 • TWX # NY 4-5196

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KEPCO, INC.
131 - 38 Sanford Avenue
Flushing 52, New York

VOLTAGE REGULATED POWER SUPPLY

MODEL 605

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SPECIFICATIONS:

HIGH VOLTAGE SUPPLY (B)

OUTPUT VOLTAGE DC: 0-600 volts continuously variable.

OUTPUT CURRENT DC: 0-500 milliamperes continuous duty.

REGULATION: In the range 0-600 volts the output voltage variation is less than 0.4 volts for line fluctuations from 115 ± 10 volts, and less than 0.1 volts for load variations from minimum to maximum current.

RIPPLE VOLTAGE: Less than 3 millivolts.

FUSE PROTECTION: Input and output fuses on front panel. Time delay relay is included to prevent unregulated voltage from appearing at the output terminations. The negative reference supply is separately fused and located on the rear apron of the chassis. In the event that this fuse blows, the B+ voltage will be automatically turned off.

BIAS SUPPLY (C)

OUTPUT VOLTAGE DC: 0-150 volts ± 3 volts, continuously variable.

OUTPUT CURRENT DC: 0-5 milliamperes continuous duty.

REGULATION: For all output voltages the voltage variation is less than 10 millivolts for line fluctuations from 105-125 volts. At 150 volts the regulation is less than 1/2% for variation in load from 0-5 milliamperes.

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At settings below 150 volts the internal resistance of the supply will increase to a maximum of 25,000 ohms.

RIPPLE VOLTAGE: Less than 1 millivolt.

FILAMENT SUPPLY

OUTPUT AC: 6.3 volts, 20 amperes, unregulated, center-tapped and ungrounded.

POWER REQUIREMENTS: 105-125 volts, 50-65 cycles.

OUTPUT TERMINATIONS: DC terminals are clearly marked on the front panel. Either positive or negative terminal of the high voltage supply may be grounded. DC terminals are isolated from the chassis. The negative terminal of the high voltage supply and the positive terminal of the bias supply are connected internally (COM.). A binding post mounted on the front panel is available for connecting to the chassis. All terminals are also brought out at the rear of the chassis.

METERS: Voltmeter: Dual Range Voltmeter with 4 position range switch: 0-600 volts, 0 to 150 volts, Range switch connects the voltmeter to high voltage supply or bias supply.

Milliammeter: 0-500 milliamperes (for high voltage supply).

CONTROLS: Line on-off switch, HV (B+) on-off switch, HV (B) control, bias (C) voltage control, voltmeter switch.

PHYSICAL SPECIFICATIONS: Height 10-1/2", width 19", depth 17". This unit is designed for relay rack mounting or bench use. Carrying handles are provided.

OPERATING INSTRUCTIONS: The Kepco Model 605 Regulated Power Supply is shipped with all tubes in place and is ready for operation.

PROCEDURE FOR TURNING ON POWER SUPPLY:

Turn on the line switch. The 6.3 V AC immediately appears at the output terminals. The C- voltage appears at the output terminals within approximately 10 seconds. The B+ voltage is delayed. Wait thirty seconds for the time delay relay to operate. Turn on the B+ power switch. The B+ power switch is in the primary circuit of the high voltage transformer. Adjust the B+ voltage control to the desired output voltage. To read the B+ voltage, set the voltmeter range switch to B+600 or B+150, depending upon the output voltage setting.

The time delay relay in this unit is a thermal type. When the thermal time delay relay closes an auxiliary double pole-double throw relay is activated. One half of this relay removes the heater voltage from the time delay relay. The other half of the relay applies the unregulated DC voltage to the regulator circuit. In the event that the line voltage should fail momentarily, this double pole-double throw relay will be de-energized. When the line voltage is again turned on, the regulated B+ voltage will not re-appear for approximately 30 seconds.

The bias voltage appears at the output terminals within 10 seconds after the power supply is turned on. The C- control is a single turn (25,000 ohm) potentiometer which varies the voltage continuously from 0-150 volts. To read the C- voltage, set the voltmeter range switch to C-150 position.

The B+ output voltage range 0-600 volts is determined by a factory

adjustment of two potentiometers mounted on the chassis directly behind the powerstat which are labelled L and H. Their settings should not be changed except to compensate for variations in regulator tubes.

When it is necessary to re-adjust the voltage limits, the procedure to be followed is:

1. The two potentiometers which control the voltage range have screw-driver adjustments and are locked in position by means of locking nuts. Release the locking nuts on the potentiometers so that the slotted shafts can be easily rotated.

2. Turn the voltage control knob on the front panel to the extreme left and adjust the potentiometer L until the voltmeter reads 0 volts (clockwise increases the voltage).

3. Turn the voltage control knob on the front panel to the extreme right and adjust the potentiometer H until the voltmeter reads 600 volts (clockwise increases the voltage).

4. Return the voltage control knob on the front panel to the extreme left. If the voltage is not 0, repeat steps 2 and 3 until the desired range 0-600 volts is obtained.

5. When the potentiometer adjustments are completed, tighten the locking nuts.

MAINTENANCE: The components of the Model 605 Regulated Power Supply have been selected and tested to provide long and trouble free operating life. The only service necessary should be the replacement of vacuum tubes. The location of the tubes is clearly marked on the chassis.

REPAIRS: Should any trouble develop in the instrument, it may be serviced with the aid of the schematic diagram. Major repairs, however, are usually handled by the factory.

Under no circumstances should the instrument be returned to the factory without proper authorization and shipping instructions. In any correspondence with the factory concerning repairs, the type and serial number of the instrument must be given together with a description of the trouble encountered.

kepco REPLACEMENT PARTS LIST

POWER SUPPLY Model 605 Code 2-2063

SCHEMATIC NO.	QTY.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)	KEPCO PART NO.
C1	1	Capacitor, Paper, Can, Type 4 µf, 1000 v	Industrial Cond. 1992	117-0016
C2	1	Capacitor 8 µf, 1000 v	General Electric 28F742-103	117-0343
C3	1	Capacitor, Ceramic 0.001 µf, 2000 v	Sprague Electric 20HKB-D1	117-0060
C4	1	Capacitor, Ceramic 100 µf, 2000 v	Good All GAG16101K20	117-0056
C5,7,11	3	Capacitor, Ceramic 500 µf, 2000 v	Good All GAG12501K20	117-0070
C8	1	Capacitor, Mylar 0.1 µf, 600 v	Good All 620S10406W	117-0068
C9	1	Capacitor, Mylar 0.25 µf, 600 v	Good All 620S25406W	117-0067
C10	1	Capacitor, Ceramic 100 µf, 2000 v	Good All GAG16101K20	117-0056
R2	1	Resistor, Fixed, Molded 1.2 meg. 2 w, 10%	Allen Bradley HB1251	115-0045
R3	1	Resistor, Fixed, Molded 510 K, 2 w, 5%	Allen Bradley HB5145	115-0276
R4,14	2	Resistor, Fixed, Molded 56 K, 1 w, 5%	Allen Bradley GB5635	115-0118
R5,13	2	Resistor, Fixed, Precision 330 K, 1/2 w, 1%	Wilrite Products CMCS-1/2	115-0216
R6,12	2	Resistor, Fixed, Precision 1 meg, 1/2 w, 1%	Wilrite Products CMCS-1/2	115-0221
R7,11,20, 22,23	5	Resistor, Fixed, Precision 250 K, 1 w, 1%	Wilrite Products CMC-1	115-0225
R8,9	2	Resistor, Fixed, Molded 390 K, 1 w, 5%	Allen Bradley GB3945	115-0117
R10	1	Resistor, Fixed, Molded 100 K, 2 w, 10%	Allen Bradley HB1041	115-0197
R15,16,19	3	Resistor, Fixed, Precision 82 K, 1/2 w, 1%	Wilrite Products CMCS-1/2	115-0213
R17	1	Resistor, Fixed, Molded 82 K, 1 w, 5%	Allen Bradley GB8235	115-0115
R18	1	Resistor, Fixed, Molded 220 K, 1 w, 5%	Allen Bradley GB2245	115-0116
R21	1	Resistor, Fixed, Molded 120 K, 1 w, 5%	Allen Bradley GB1245	115-0119
R24	1	Resistor, Fixed, Molded 560 K, 1 w, 5%	Allen Bradley GB5645	115-0120

REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

PLEASE NOTE: THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS, REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES. KEPCO, INC.

SCHEMATIC NO.	QTY.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)	KEPCO PART NO.
R25	1	Resistor, Fixed, Molded 100 ohm, 1 w, 10%	Allen Bradley GB1011	115-0002
T1	1	Transformer	Kepco Magnetics	100-0664
V2	1	Vacuum Tube	Tung Sol 5651	126-0037
V3	1	Vacuum Tube	Tung Sol 5U4GB	126-0016
V4	1	Vacuum Tube	General Electric 7581	126-0092
V5	1	Vacuum Tube	Sylvania Electric 6U8A	126-0048
V6,7,8	3	Vacuum Tube	Amperex Electronic 12AX7	126-0035
V9	1	Vacuum Tube	RCA 6C4	126-0053
V10	1	Vacuum Tube	Tung Sol 6BQ6GTB	126-0054
V11,12	2	Vacuum Tube	General Electric NE-2	126-0061
C101,108	2	Capacitor, Mylar 0.25 µf, 1000 v	Good All 620S254010W	117-0066
C102-106	5	Capacitor, 8 µf, 1000 v	General Electric 28F742-103	117-0343
C107	1	Capacitor, Paper, Can, Type 4 µf, 1000 v	Industrial Cond. 1992	117-0016
C109	1	Capacitor, Mylar 0.1 µf, 600 v	Good All 620S10406W	117-0068
CR101	1	Silicon, Rectifier, Pigtail	Columbus CEC1000	124-0094
F101	1	Fuse, Inst. 10 a, 250 v	Bussman ABC-10	141-0014
F102	1	Fuse, Inst. 3/4 a, 250 v	Bussman AGC-3/4	141-0008
F103	1	Fuse, Slo-Blo 8/10 a, 250 v	Bussman MDL-8/10	141-0027
*M101	1	Meter, Amp. 0-500 ma, DC	Ammon	135-0248

*Metered Models Only

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kepco REPLACEMENT PARTS LIST

POWER SUPPLY Model 605 Code 2-2063

SCHEMATIC NO.	QTY.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)	KEPCO PART NO.
*M102	1	Meter, Volt 0-150, 600 v, DC	Ammon	135-0254
PL101, 102	2	Pilot Light	General Electric NE-51	153-0024
R101, 102	2	Resistor, Variable, Multiple 500 K-500 K, 2 w, 20%	Allen Bradley JD1N048P504MZ	115-0048
R103, 105	2	Resistor, Variable, Composition 250 K, 2 w, 10%	Allen Bradley JA1H100S254UZ	115-0428
R104	1	Resistor, Fixed, Molded 150 K, 1 w, 5%	Allen Bradley GB1545	115-0123
R106	1	Resistor, Power, Tubular 100 K, 20 w, 5%	Ohmite Mfg. 2-H-48-F-100,000	115-0137
R107	1	Resistor, Power, Tubular 50 K, 20 w, 5%	Ohmite Mfg. 2-H-48-F-50,000	115-0078
R108	1	Resistor, Variable, WW 25 K, 3 w, 10%	Continental Carbon WCB	115-0025
R109, 114	2	Resistor, Fixed, Molded 560 ohm, 1 w, 10%	Allen Bradley GB5611	115-0183
R115, 120	6	Resistor, Fixed, Molded 47 ohm, 1 w, 10%	Allen Bradley GB4701	115-0005
R121	1	Resistor, Power, Tubular 10 K, 10 w, 5%	Ward Leonard 10F10000	115-0023
RL101	1	Relay, DPDT 115 v, AC	Ohmite Mfg. DOSX-7T	140-0019
S101, 103	3	Switch, SPST 15 a, 125 v	Carling Electric 2FA53-63	127-0012
S102	1	Switch, Rotary 3 pole, 4 position	Trolex Corp. A212-2070-1	127-0042
T101	1	Transformer	Kepco Magnetics	100-0631
T102	1	Transformer	Kepco Magnetics	100-0632
T103	1	Autotransformer, Variable	Superior Electric 116-U	175-0010
TD101	1	Relay	Curtis-Wright 117-30-G0	140-0003
V101-103	3	Vacuum Tube	General Electric 5R4GY	126-0004
V104-106	3	Vacuum Tube	Tung Sol 6336A	126-0033
V107	1	Vacuum Tube	Amperex Electric	126-0055

*Metered Models Only

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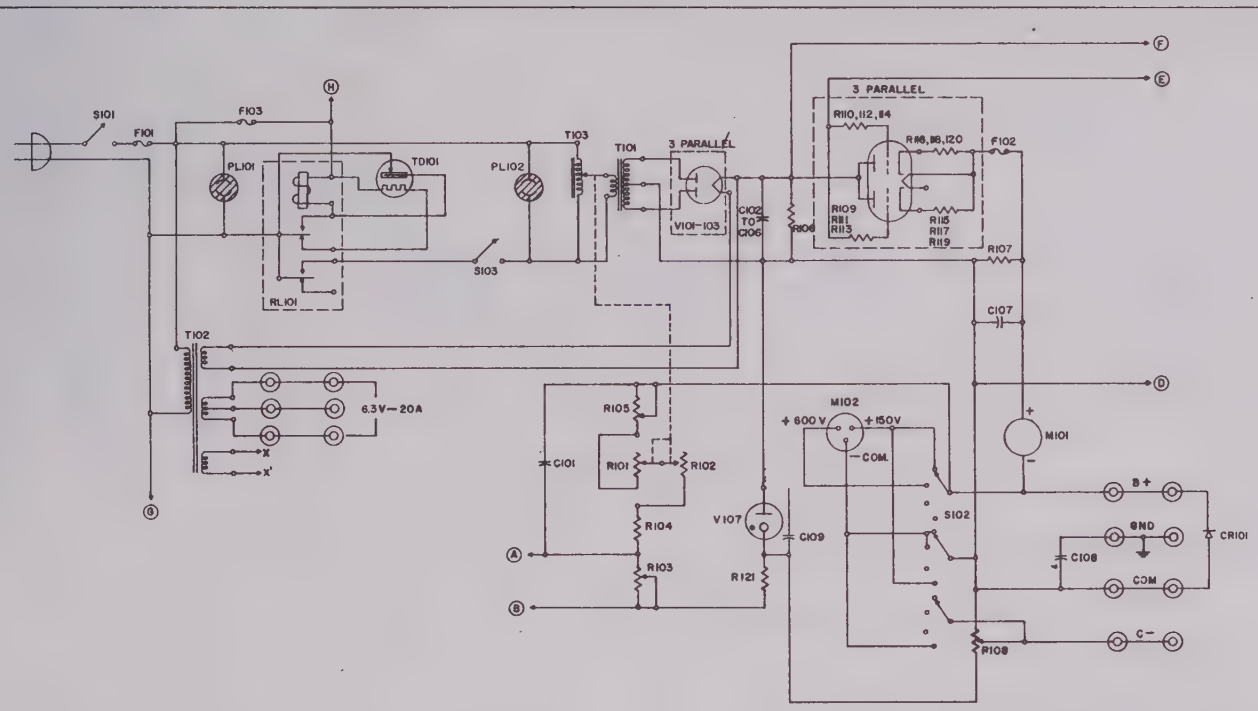

NOTE: LETTER ENCLOSED IN CIRCLES DENOTE CONNECTIONS TO CORRESPONDING POINTS ON S-605-01

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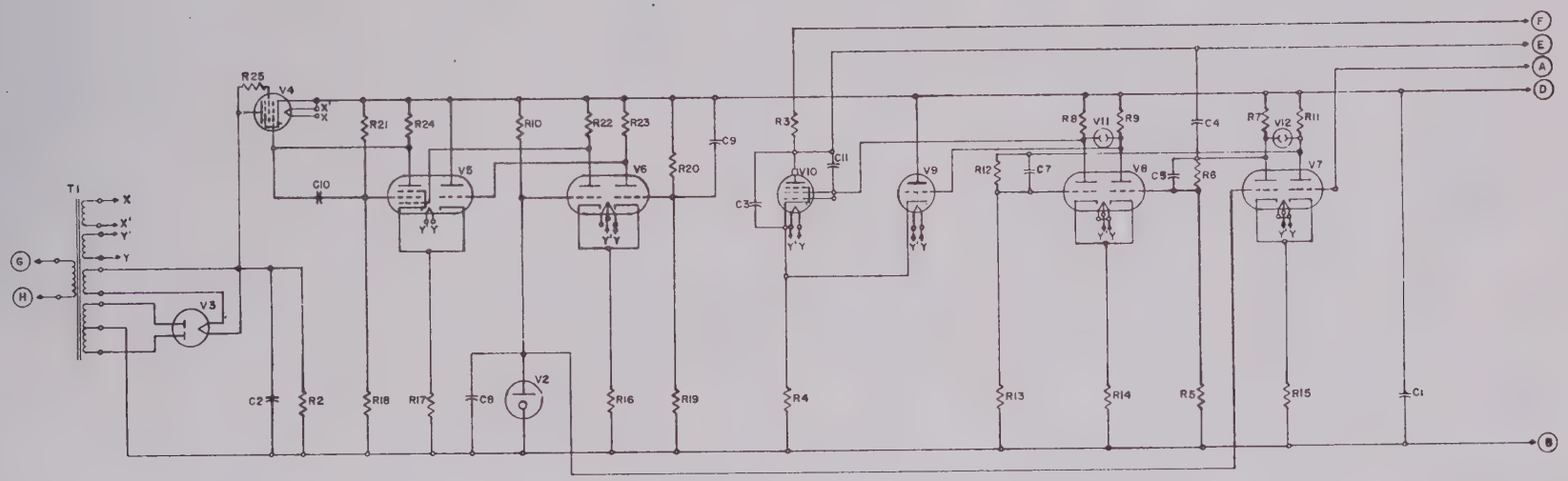
FLUSHING		NEW YORK
ITEM: POWER SUPPLY	DES. K.K.	
	APPD 2-4-60 K.K.	
MODEL 605	DRTR W.S.	
DWG. No. S-605-02	CHKD	



NOTE.
LETTERS ENCLOSED IN CIRCLES INDICATE CONNECTIONS
TO CORRESPONDING POINTS ON S-605-02

KEPCO LABORATORIES
FLUSHING NEW YORK

ITEM: REFERENCE AMPLIFIER	DES.	GROUP
	APPD.	POCKET
	DFTM. W.V.D.	FOLDER
MODEL 605	CHKD.	ORIGINALS
DWG. NO. S-605-01	DATE 2-11-57	SHEET OF

KEPCO PARTS KIT ASSEMBLY INSTRUCTIONS

1 Mount Parts Kit Board Assembly, to bottom surface of Kepco Model 605, using the 1/4/20 mounting stud of Transformer 100-0631 and an existing hole beneath the powerstat.

2 Connect the Slate Wire from terminal #1 to the D.C. Pilot Lamp, PL102.

3. Connect the Slate/White Wire from Terminal #2 to the D.C. Pilot Lamp, PL102.

4 Connect the White/Black Wire from terminal #3 to Terminal #2 of 100-0631.

5. Connect Black/Yellow Wire from terminal #4 to terminal #5 of 100-0664.

6. Connect Green Wire from Terminal No. 5 to the Top of Terminal No. 1 of Resistor Board 1.

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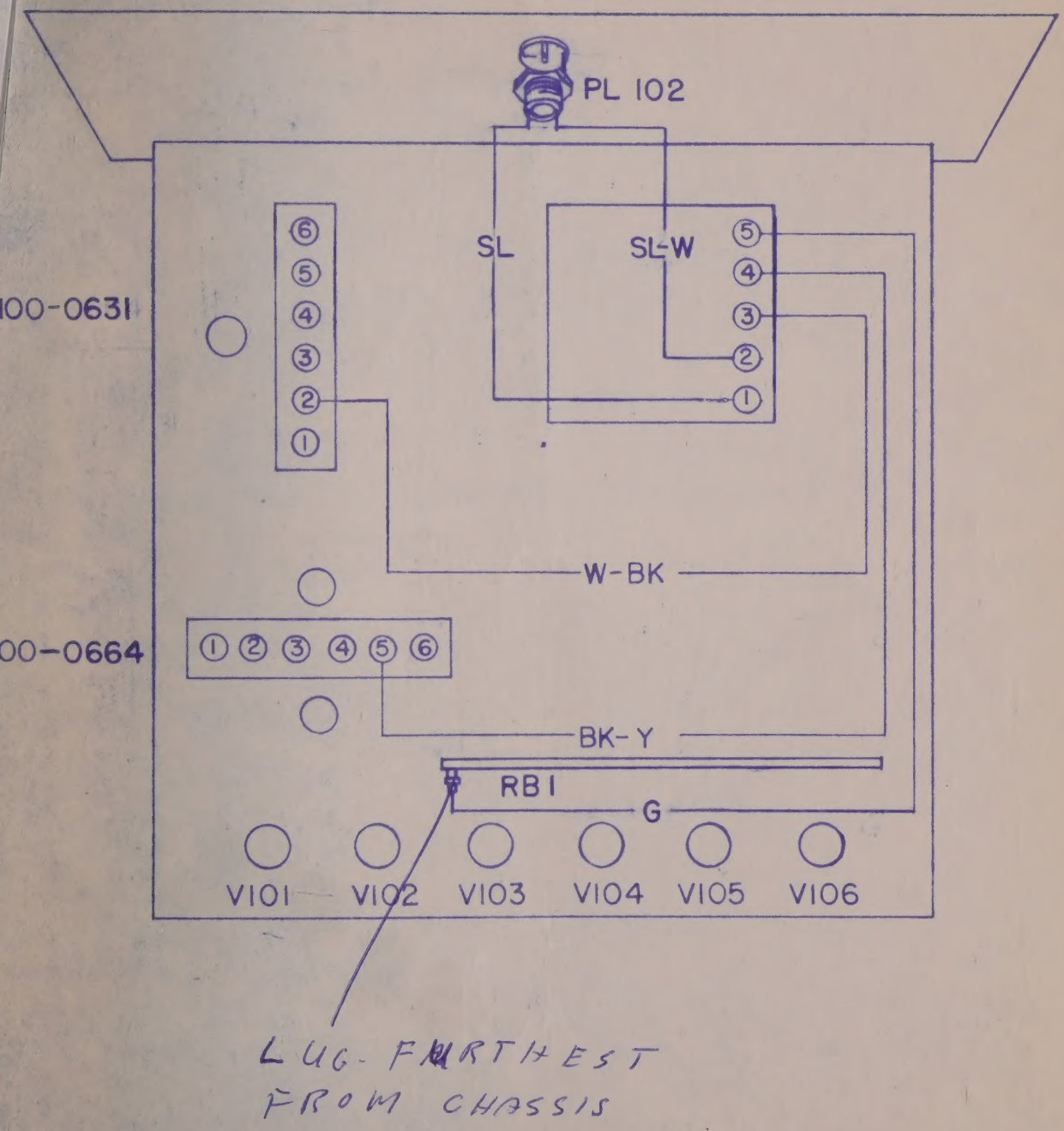
PL 102
SL
SL-W
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RB1
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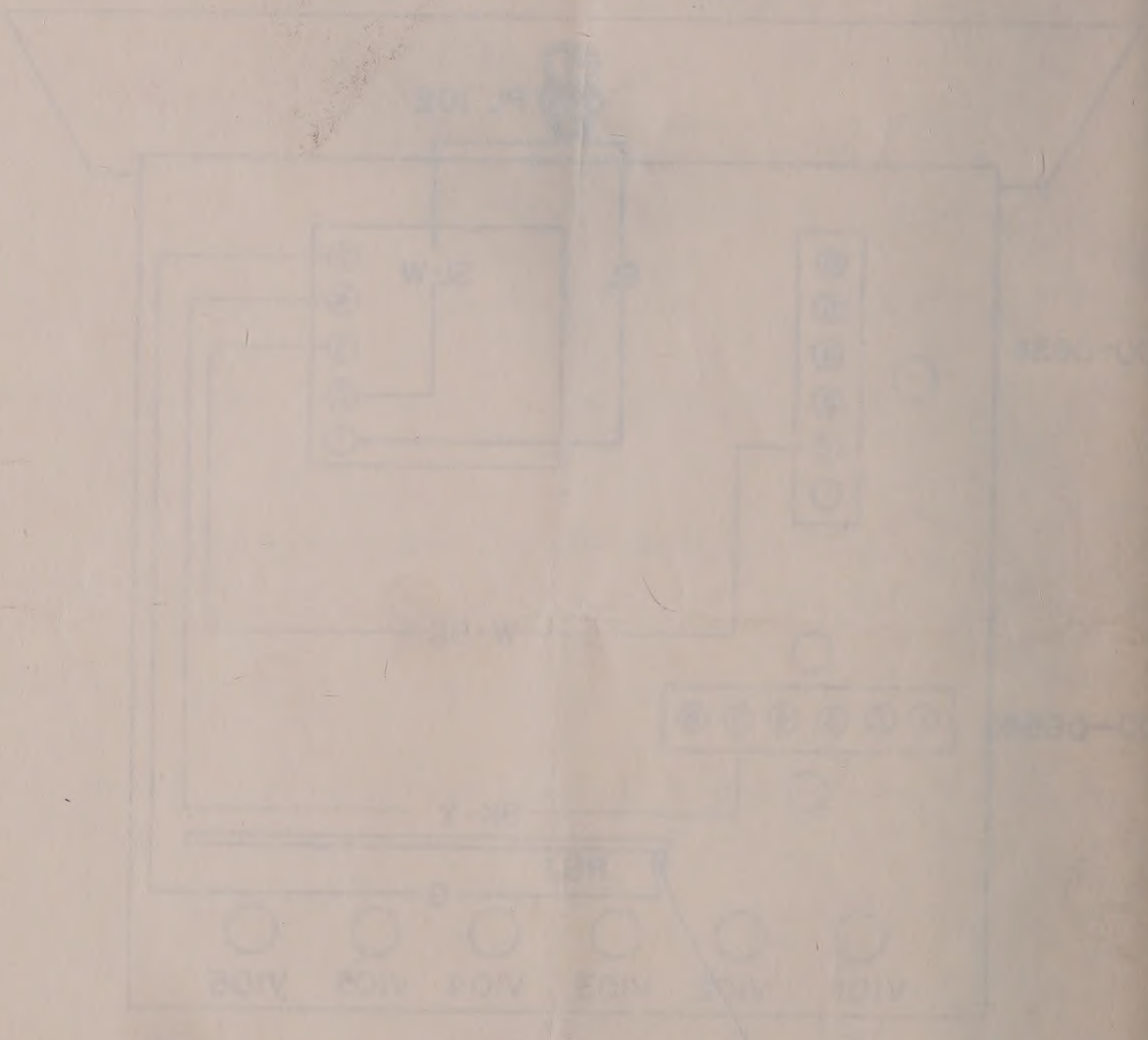

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